



Klamath Network Featured Creature

January 2010

Rat-Tailed Maggot (*Eristalis tenax*)

FIELD NOTES:

General Description:

The “rat-tailed maggots” are the aquatic larvae of certain genera of the Dipteran family Syrphidae. This apt, imaginative common name is an appropriate description of a long, telescoping respiratory siphon which can extend several times their body length. Another common name for them is “mousies,” and they are common live bait for ice fishing in the Midwest.

The rat-tailed maggot is an air breather, using their namesake organ to access open air, even though the body is fully submerged. Since their respiration is not dependent on the oxygen content of the water, they can survive anoxic, anaerobic conditions.

Habitat:

Descriptions of the favored habitat of rat-tailed maggots generally include such colorful words as: Putrid, Filthy, Stagnant, Liquid Manure, and Excrement-laden. In short, these larvae are so tough, that they can live in very marginal habitats, which few other invertebrates can colonize. They have even been reported in petroleum-laden pools, where their siphon can penetrate the oil layers, allowing them to breathe.

Although the above habitat descriptors give us a sense of pollution, note that many naturally occurring marginal habitats can fit the requirements of the rat-tailed maggots, such as temporary pools in the middle of the forest, or moist decaying wood. However, when we find them in ecosystems not normally expected to be “putrid,” they serve as excellent indicators of ecosystem impairment.



Images of *Eristalis* sp. Top photo from collection and courtesy of Dr. Mark Vinson, USGS. Middle images from <http://bugguide.net/node/view/26679/bgimage>.

Bottom image of adult from <http://nathistoc.bio.uci.edu/diptera/Eristalis.htm>

Reproduction and Adult Stage:

Reproduction of the rat-tailed maggots occurs in the adult stage, where they have much more aesthetically pleasing common names: “Flower Flies,” “Hover Flies,” or “Drone Flies.” As adults, the flower flies are important as pollinators, second only to bees and wasps.

The adult stage of *Eristalis tenax* is an excellent example of mimicry, closely resembling the honey bee in color, size, and behavior. However, as a “True Fly” of the order Diptera, they only have two wings, whereas bees and wasps will have four wings.

Distribution:

Eristalis tenax is wide spread, from northern regions in Alaska, south to California and Florida. World-wide, it can even be found in Europe.

Where to see it in the Klamath Parks:

The aerial dispersal, ability to live in marginal habitats, and cosmopolitan distribution suggest that these could be found in all of our Klamath Network Parks, even in our park not normally associated with aquatic insects, the arid Lava Beds National Monument.

More Information:

Swan, L.A. and C.S. Papp. 1972. The common insects of North America. Harper and Row, Publishers. New York, NY.

Usinger, R.L. 1956. Aquatic insects of California. University of California Press, Berkeley, CA.

Bonus section: NOT FOR THE FAINT OF HEART: This species is also reported to have infected the intestinal tracks of humans, somehow passing through the digestive tract unharmed. When getting to the colon, the respiratory siphon allows them access to an “airway.”